USER MANUAL

PSR-12A

Active Professional Two-Way
Sound Reinforcement Loudspeaker

This manual does not include all of the details of design, production, or variations of the equipment. Nor does it cover every possible situation which may arise during installation, operation or maintenance.
The information provided in this manual was deemed accurate at the publication date.

Www.prolight.co.uk

Important Safety Instructions

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with a dry cloth.
7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators, heat exchangers, stoves, or other apparatus that produce heat.
9) Please ensure that this apparatus is correctly earthed at all times.
10) Protect the power cord from being walked on or trapped, particularly at plugs, and the point where they exit from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with a cart, stand, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14) To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN

TO PREVENT ELECTRIC SHOCK DO NOT REMOVE TOP OR BOTTOM COVERS. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WATCH FOR THESE SYMBOLS:

The lightning bolt triangle is used to alert the user to the risk of electric shock.

The exclamation point triangle is used to alert the user to important operating or maintenance instructions.

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INTRODUCTION

Thank you for choosing W audio active sound reinforcement speakers.

The PSR-12A is an active two-way loudspeaker capable of extremely high sound pressure levels, and designed to give you the best performance of any loudspeaker in its class and price range.

Our design goal was to build a sound reinforcement speaker with:

1. High precision, high output, and accurate playback.
2. Very wide, smooth dispersion of mid and high frequencies.
3. Ergonomically correct physical design for easy transport and set up.

Through the combined resources of our top-notch mechanical and analog engineers, we were able to achieve our design goals in every respect. The result is a sound reinforcement system equally at home in a concert setting, in the studio, in the cinema, or in a home theater.

The Transducers

The PSR-12A active speakers feature a12-inch high -power low-frequency woofer and a 1.75-inch titanium diaphragm high-output precision compression driver. This high-frequency driver is mounted on an acoustically non-resonant exponential waveguide, providing a wide, controlled dispersion and precise reproduction of the critical upper mid-range and high frequencies. The result is an unbelievably smooth off-axis response that allows everyone in the audience to experience the same high-resolution audio no matter where they are seated.

Each driver has been specifically desiged by our engineers for optimum performance in the lightweight high-strength cabinet.

W Series Power Amplifiers

PSR-12A,Our exclusive design uses low negative feedback, yet allows the amplifiers to maintain low distortion and stability and to quickly recover when driven into clipping.

The amplifiers include the followingfeatures:

- The low-frequency amplifier produces up to 600 watts peak(300 continuous) before clipping.
- The high-frequency amplifier produces up to 100 watts peak (50 continuous) before clipping.
- Each amplifier has its own compressor circuit that acts when the input signal is large enough to cause clipping, distortion and excessive voice coil heat. The compressor will automatically decrease the input signal to a safe level. The compressor in the low-frepuency amp works independently from that in the high-frequency amp.
- The low-frequency amp uses servo feedback loop which senses the current flowing in the woofer coil. This controls the low-frequency response and maintains low distortion at high output levels.
- The low-frequency amplifier also has a seeping filter. This will automatically move the low cut-off frequency up or down depending on the amplifier output.

The Cabinet

The PSR-12A cabinet was designed to be the strongest moulded composite cabinet on the planet. This material is rigid enough to prevent unwanted vibrations in the cabinet. It has built-in fly points for hanging, and a socket in the bottom for mounting on a tripod stand. Although it is an exceptional choice for portable sound system use. The asymmetrical trapezoidal design of the cabinet makes it easy to use as a floor wedge for stage monitor applications.

The Active Advantage

There are a number of advantages to using an active speaker system over a passive loudspeaker:

The internal crossover is active, and its low power circuitry operates on line-level signals. It does not waste speaker-level power like a passive crossover with large coils, caps, and resistors.

The input signals are crossed over before they reach the amplifiers, so each amplifier only receives the correct frequency range for its driver.

The amplifiers are designed specifically for these speaker load impedances.

There is no guesswork as to what load each amplifier has to drive, so they can provide maximum acoustic output from the speakers, yet minimize the danger of speaker damage due to overdriving.

The connecting wires between the amplifier outputs and the drivers are kept to a minimum, so the damping factor of the amplifier is not compromised by the resistance of long speaker cables. In addition, all the power from the amplifier is transferred directly to the drivers with no speaker cable losses

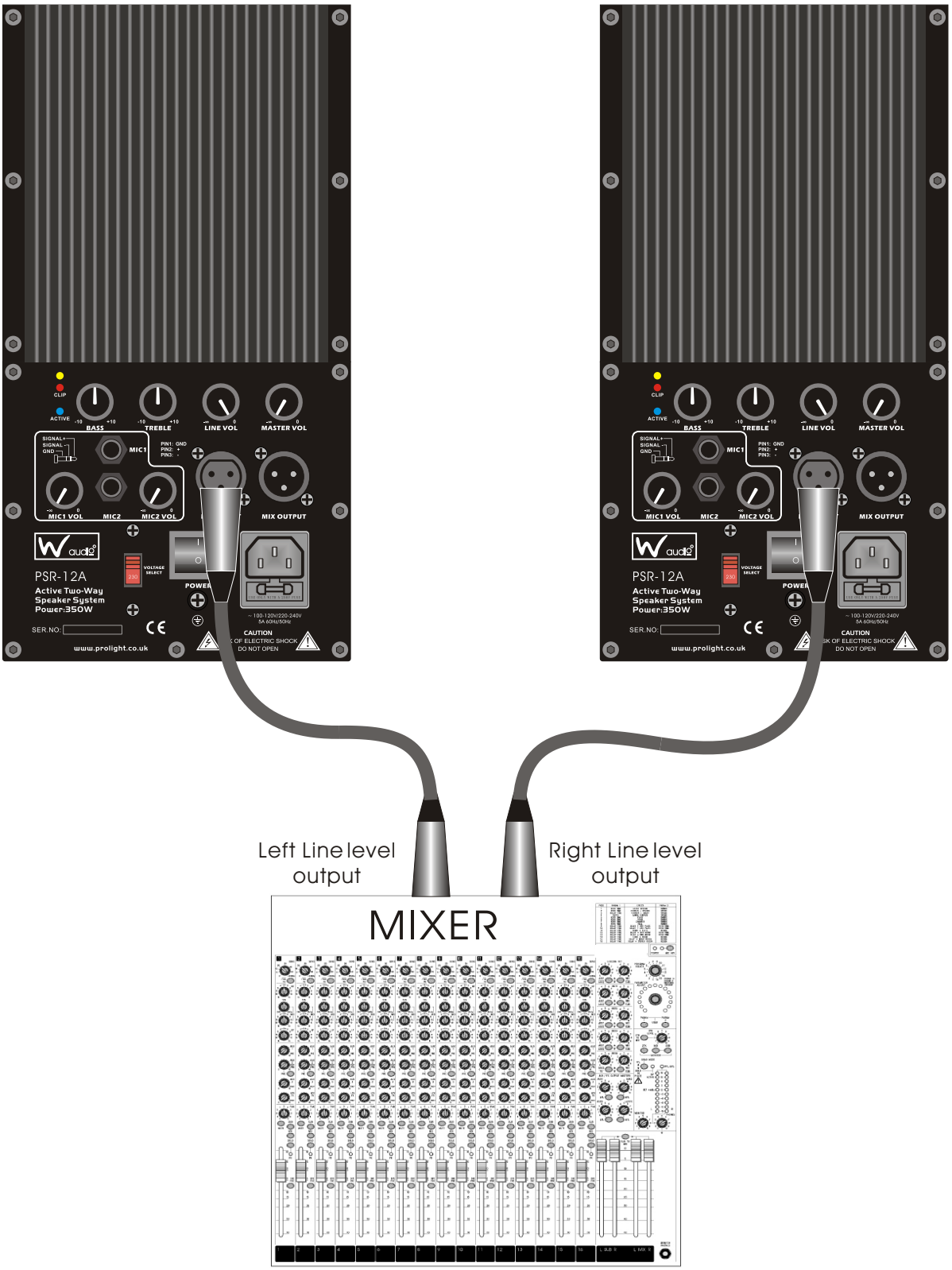
The acoustic sum of the outputs from the two drivers is optimized electronically, as well as physically, so the output response is flatter.

The presence of active circuits within the speaker cabinet allow the designer to add on extra details, such as a high quality mic/line input section and optional accessory modules.

In short, all the complex interconnected components in the system are designed to work in harmony with each other to produce the best possible sound.

HOOKUP DIAGRAMS

PSR-12A STEREO OPERATION WITH A MIXER

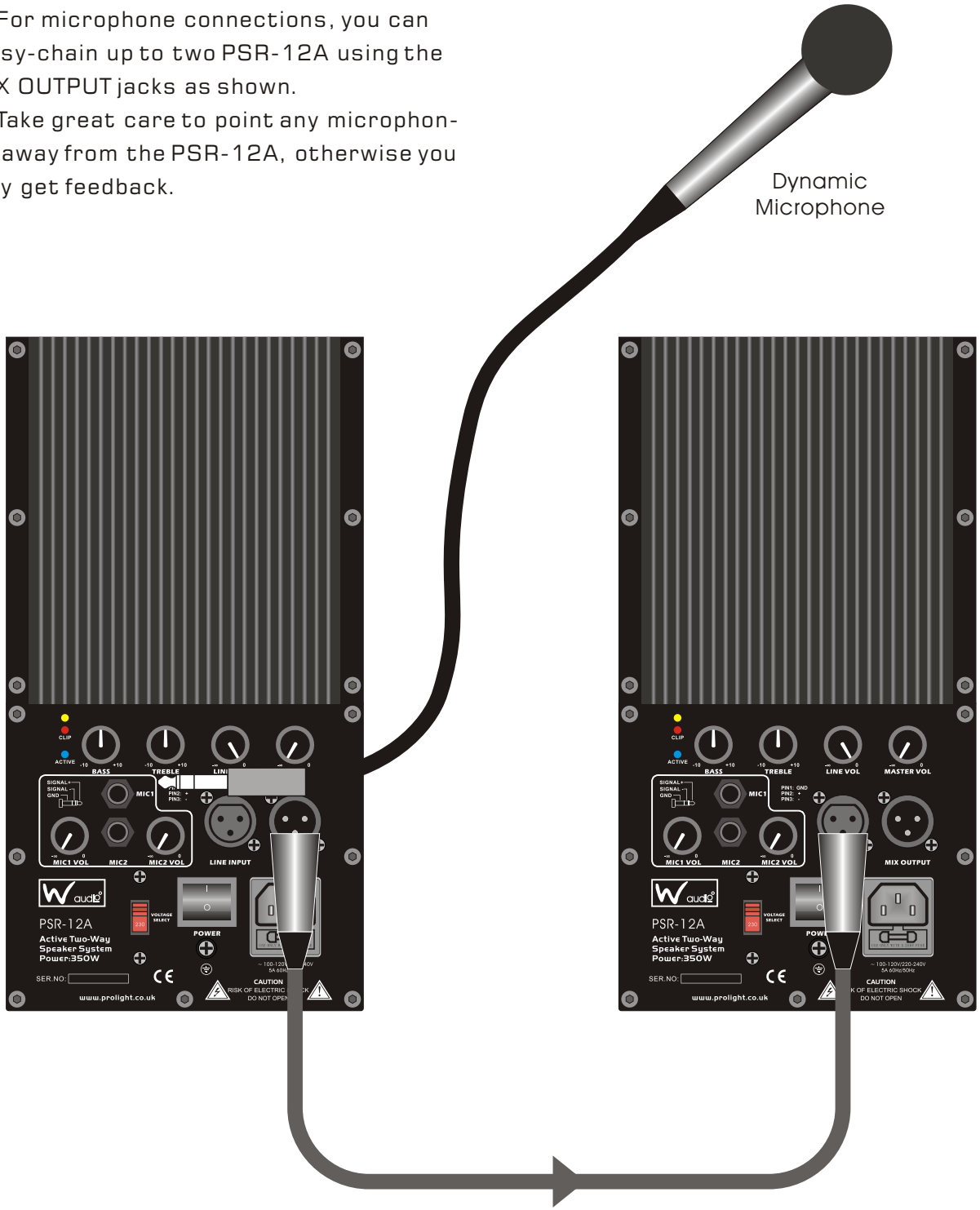


HOOKUP DIAGRAMS

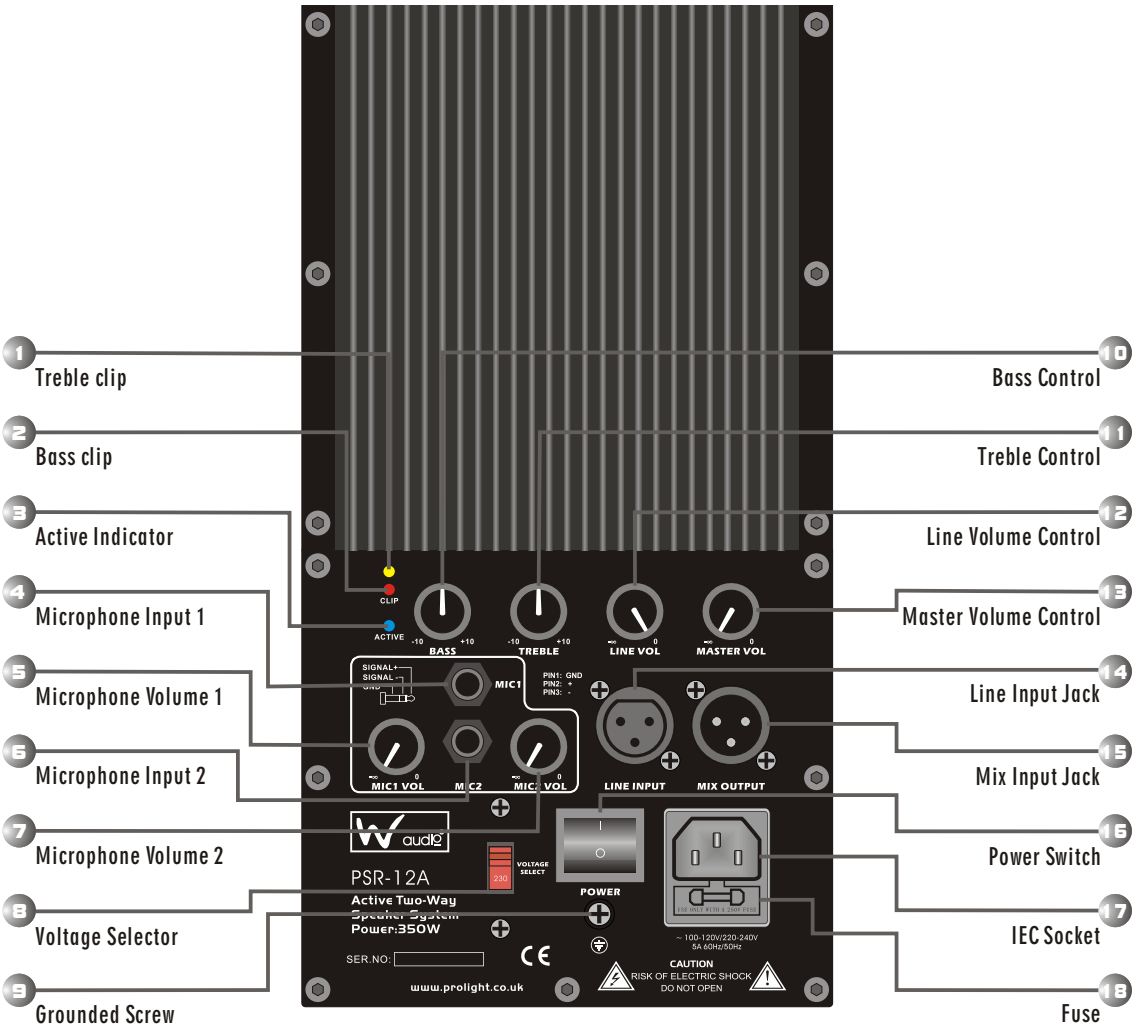
PSR-12A USING A MICROPHONE AND THE THRU CONNECTION

For microphone connections, you can daisy-chain up to two PSR-12A using the MIX OUTPUT jacks as shown.

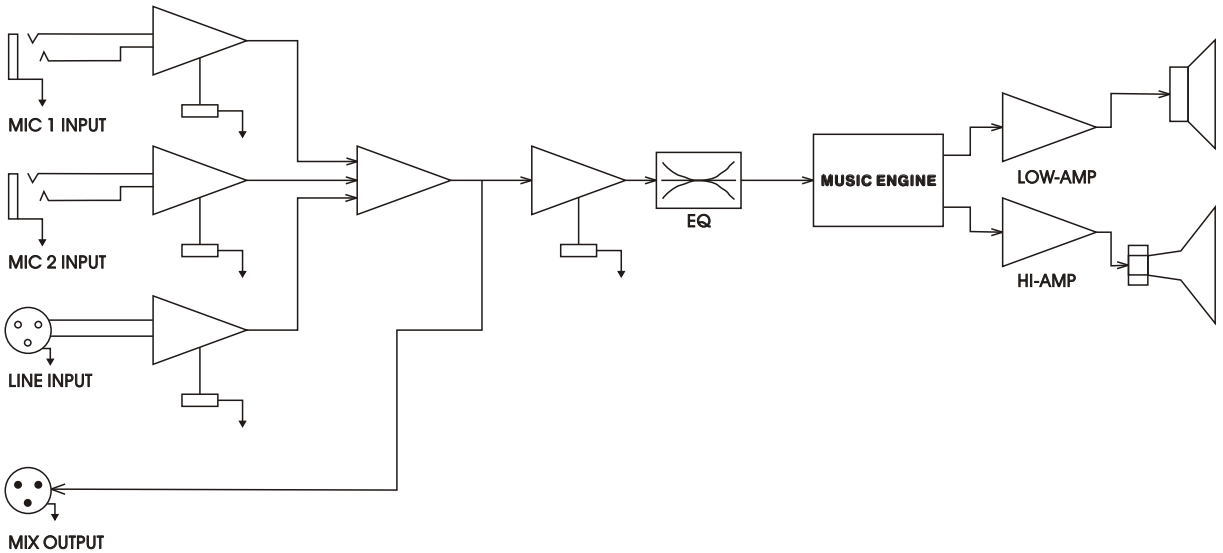
Take great care to point any microphones away from the PSR-12A, otherwise you may get feedback.



REAR PANEL DESCRIPTION



PSR-12A BLOCK DIAGRAM



PSR-12A SPECIFICATIONS

System Specifications	
Frequency Response(-3dB)	50Hz-18kHz
Frequency Range(-10dB)	40Hz-20kHz
Max SPL Long-term@1m	124dB
Max SPL Peak@1m	127dB
Horizontal Coverage	80°
Vertical Coverage	60°
Crossover	Linkwitz-Riley, 24dB/octave@2.2kHz
Audio	
Input Type	Balanced Differential
Input Impedance	20kohms
Sensitivity Line Mic	 0dBu -32dBu
Maximum Input Level	+18dBu
Low-Cut Frequency	30HZ,Second-order filter
Operating Temperature Range	-10°C to 45°C(14°F to 113°F)
Power Amplifiers	
Low-Frequency Power Amplifier Rated Power Rated THD Cooling Design	 300 watts* <0.1% Convection Extrusion Class G
Hi-Frequency Power Amplifier Rated Power Rated THD Cooling Design	 50 watts* <0.1% Convection Extrusion Class AB
*Rated power is continuous rms wattage into transducer s rated impedance @ 1kHz for the HF amplifier and @ 100 Hz for the LF amplifier.	
Transducers	
Low-Frequency Transducer Diameter Voice Coil Diameter Frequency Range Sensitivity(1W@1M) Nominal Impedance Power Handling	 12 in/300mm 3 in/75mm 45Hz-3kHz 98dB 4ohms 300 watts, program
High-Frequency Transducer Diaphragm Diameter Diaphragm Material Frequency Range Sensitivity(1W@1M) Nominal Impedance Power Handling	 1.75 in/44.5mm Titanium 1kHz-20kHz 106dB 8ohms 50 watts, program

PSR-12A SPECIFICATIONS

Physical Properties	
Height	24.2in/615mm
Width	16.4 in/416mm
Depth	14 in/356mm
Weight	55 lb/25kg

Disclaimer

Since we are always striving to make our products better by incorporating new and improved materials, components, and manufacturing methods, we reserve the right to change these specifications at anytime without notice.

NOTES

audio